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gctggcggct cctcactgca gcagctggac cccgagaaca caggcttcat cggtgcggac   300

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tacgtggcct acgagatcct gccttgtgag gtggaccgcc gctggtactt ctaccgtcac    600

cgcagctgcc cacccccgt gttcatggcc tcggtcactc ttgcccagat catcgtgttc    660

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Arg Glu Gln Thr Gly Thr Gly Pro Leu Ser Gln Lys Cys Trp Glu Pro

2

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Glu Pro Asp Ala Pro Ser Gln Pro Gly Pro Ala Leu Trp Ser Arg Gly
    50                  55                  60

Arg Ala Arg Thr Gln Ala Leu Ala Gly Gly Ser Ser Leu Gln Gln Leu
65              70                  75                      80

Asp Pro Glu Asn Thr Gly Phe Ile Gly Ala Asp Thr Phe Thr Gly Leu
                85                  90                  95

Val His Ser His Glu Leu Pro Leu Asp Pro Ala Lys Leu Asp Met Leu
                100                 105                 110

Val Ala Leu Ala Gln Ser Asn Glu Gln Gly Gln Val Cys Tyr Gln Glu
            115                 120                 125

Leu Val Asp Leu Ile Ser Ser Lys Arg Ser Ser Ser Phe Lys Arg Ala
    130                 135                 140

Ile Ala Asn Gly Gln Arg Ala Leu Pro Arg Asp Gly Pro Leu Asp Glu
145                 150                 155                 160

Pro Gly Leu Gly Val Tyr Lys Arg Phe Val Arg Tyr Val Ala Tyr Glu
                165                 170                 175

Ile Leu Pro Cys Glu Val Asp Arg Arg Trp Tyr Phe Tyr Arg His Arg
            180                 185                 190

Ser Cys Pro Pro Pro Val Phe Met Ala Ser Val Thr Leu Ala Gln Ile
        195                 200                 205

Ile Val Phe Leu Cys Tyr Gly Ala Arg Leu Asn Lys Trp Val Leu Gln
    210                 215                 220

Thr Tyr His Pro Glu Tyr Met Lys Ser Pro Leu Val Tyr His Pro Gly
225                 230                 235                 240

His Arg Ala Arg Ala Trp Arg Phe Leu Thr Tyr Met Phe Met His Val
                245                 250                 255

Gly Leu Glu Gln Leu Gly Phe Asn Ala Leu Leu Gln Leu Met Ile Gly
                260                 265                 270
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3

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Val Pro Leu Glu Met Val His Gly Leu Leu Arg Ile Ser Leu Leu Tyr
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Leu Ala Gly Val Leu Ala Gly Ser Leu Thr Val Ser Ile Thr Asp Met
        290                 295                 300


Arg Ala Pro Val Val Gly Gly Ser Gly Gly Val Tyr Ala Leu Cys Ser
305                 310                 315                 320


Ala His Leu Ala Asn Val Val Met Asn Trp Ala Gly Met Arg Cys Pro
                325                 330                 335


Tyr Lys Leu Leu Arg Met Val Leu Ala Leu Val Cys Met Ser Ser Glu
            340                 345                 350


Val Gly Arg Ala Val Trp Leu Arg Phe Ser Pro Pro Leu Pro Ala Ser
            355                 360                 365


Gly Pro Gln Pro Ser Phe Met Ala His Leu Ala Gly Ala Val Val Gly
        370                 375                 380


Val Ser Met Gly Leu Thr Ile Leu Arg Ser Tyr Glu Glu Arg Leu Arg
385                 390                 395                 400


Asp Gln Cys Gly Trp Trp Val Val Leu Leu Ala Tyr Gly Thr Phe Leu
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Leu Phe Ala Val Phe Trp Asn Val Phe Ala Tyr Asp Leu Leu Gly Ala
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His Ile Pro Pro Pro Pro
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4

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cgggccaaga gtaaaaaggt ccacaggatt gtctcaaaat ggatgctgcc cgaaaagtcc      360

cgaggaacat acttggagag agctaactgc ttcccgcctc ccgtgttcat catctccatc      420

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atcacgttgg acacaggcat cttggagagt ccctttatct acagtcctga gaagagggag      540

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              20                  25                  30


Asp Gly Gly Gly Lys Asp Arg Ala Lys Ser Lys Lys Val His Arg Ile
         35                  40                  45
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5

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Val Ser Lys Trp Met Leu Pro Glu Lys Ser Arg Gly Thr Tyr Leu Glu
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Arg Ala Asn Cys Phe Pro Pro Val Phe Ile Ile Ser Ile Ser Leu
65                  70                  75                  80

Ala Glu Leu Ala Val Phe Ile Tyr Tyr Ala Val Trp Lys Pro Gln Lys
                85                  90                  95

Gln Trp Ile Thr Leu Asp Thr Gly Ile Leu Glu Ser Pro Phe Ile Tyr
                100                 105                 110

Ser Pro Glu Lys Arg Glu Glu Ala Trp Arg Phe Ile Ser Tyr Met Leu
            115                 120                 125

Val His Ala Gly Val Gln His Ile Leu Gly Asn Leu Cys Met Gln Leu
    130                 135                 140

Val Leu Gly Ile Pro Leu Glu Met Val His Lys Gly Leu Arg Val Gly
145                 150                 155                 160

Leu Val Tyr Leu Ala Gly Val Ile Ala Gly Ser Leu Ala Ser Ser Ile
                165                 170                 175

Phe Asp Pro Leu Arg Tyr Leu Val Gly Ala Ser Gly Gly Val Tyr Ala
            180                 185                 190

Leu Met Gly Gly Tyr Phe Met Asn Val Leu Val Asn Phe Gln Glu Met
            195                 200                 205

Ile Pro Ala Phe Gly Ile Phe Arg Leu Leu Ile Ile Ile Leu Ile Ile
    210                 215                 220

Val Leu Asp Met Gly Phe Ala Leu Tyr Arg Arg Phe Phe Val Pro Glu
225                 230                 235                 240

Asp Gly Ser Pro Val Ser Phe Ala Ala His Ile Ala Gly Gly Phe Ala
                245                 250                 255

Gly Met Ser Ile Gly Tyr Thr Val Phe Ser Cys Phe Asp Lys Ala Leu
            260                 265                 270

Leu Lys Asp Pro Arg Phe Trp Ile Ala Ile Ala Ala Tyr Leu Ala Cys
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6

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ggggataagt tgtgataccg acccgcgagg cgccgcggtc caaggaggag gcaaaagcag   180

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acaggccatg gctgagtttg accctgggaa cacaggctac attagcacag gcaagttccg   300

gagtcttctg gagagccaca gctccaagct ggacccgcac aaaagggagg tcctcctggc   360

tcttgccgac agccacgcgg atgggcagat cggctaccag gattttgtca gcctagtgag   420

caacaagcgt tccaacagct ccgccaagc catcctgcag ggcaaccgca ggctaagcag   480

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7

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            20   25   30

Arg Glu Val Leu Leu Ala Leu Ala Asp Ser His Ala Asp Gly Gln Ile
        35   40   45

Gly Tyr Gln Asp Phe Val Ser Leu Val Ser Asn Lys Arg Ser Asn Ser
    50   55   60

Phe Arg Gln Ala Ile Leu Gln Gly Asn Arg Arg Leu Ser Ser Lys Ala
65   70   75   80

Leu Leu Glu Glu Lys Gly Leu Ser Leu Ser Gln Arg Leu Ile Arg His
                85   90   95

Val Ala Tyr Glu Thr Leu Pro Arg Glu Ile Asp Arg Lys Trp Tyr Tyr
                100   105   110

Asp Ser Tyr Thr Cys Cys Pro Pro Trp Phe Met Ile Thr Val Thr
            115   120   125

Leu Leu Glu Val Ala Phe Phe Leu Tyr Asn Gly Val Ser Leu Gly Gln
    130   135   140

Phe Val Leu Gln Val Thr His Pro Arg Tyr Leu Lys Asn Ser Leu Val
145   150   155   160

Tyr His Pro Gln Leu Arg Ala Gln Val Trp Arg Tyr Leu Thr Tyr Ile
                165   170   175

Phe Met His Ala Gly Ile Glu His Leu Gly Leu Asn Val Val Leu Gln
            180   185   190

8

Leu Leu Val Gly Val Pro Leu Glu Met Val His Gly Ala Thr Arg Ile
      195   200   205

Gly Leu Val Tyr Val Ala Gly Val Val Ala Gly Ser Leu Ala Val Ser
      210   215   220

Val Ala Asp Met Thr Ala Pro Val Val Gly Ser Ser Gly Gly Val Tyr
225   230   235   240

Ala Leu Val Ser Ala His Leu Ala Asn Ile Val Met Asn Trp Ser Gly
                  245   250   255

Met Lys Cys Gln Phe Lys Leu Leu Arg Met Ala Val Ala Leu Ile Cys
                  260   265   270

Met Ser Met Glu Phe Gly Arg Ala Val Trp Leu Arg Phe His Pro Ser
            275   280   285

Ala Tyr Pro Pro Cys Pro His Pro Ser Phe Val Ala His Leu Gly Gly
      290   295   300

Val Ala Val Gly Ile Thr Leu Gly Val Val Val Leu Arg Asn Tyr Glu
305   310   315   320

Gln Arg Leu Gln Asp Gln Ser Leu Trp Trp Ile Phe Val Ala Met Tyr
                  325   330   335

Thr Val Phe Val Leu Phe Ala Val Phe Trp Asn Ile Phe Ala Tyr Thr
            340   345   350

Leu Leu Asp Leu Lys Leu Pro Pro Pro Pro
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cgcaggttta acttctttat tcaacaaaaa tgcggattca gaaaagcacc caggaaggtt   180

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cctttatttt ttactgttgg gtttacaggc tgtgcatttg gatcagctgc tatttggcaa    360

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<212>   PRT
<213>   Homo sapiens

<400>   8

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            20   25   30

Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln
        35   40   45

Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
    50   55   60

Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile

10

Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
                85   90   95

Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
                100   105   110

Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
                115   120   125

Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
        130   135   140

Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
145   150   155   160

Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
                165   170   175

Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
                180   185   190

Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro
        195   200   205

Met Leu Leu Ser Thr Phe Ser His Phe Ser Leu Phe His Met Ala Ala
        210   215   220

Asn Met Tyr Val Leu Trp Ser Phe Ser Ser Ile Val Asn Ile Leu
225   230   235   240

Gly Gln Glu Gln Phe Met Ala Val Tyr Leu Ser Ala Gly Val Ile Ser
                245   250   255

Asn Phe Val Ser Tyr Leu Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro
                260   265   270

Ser Leu Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys
                275   280   285

Thr Lys Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe
        290   295   300

11

Thr Phe Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr
305   310   315   320

Ala Gly Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu
                325   330   335

Gly Gly Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu
                340   345   350

Ile Trp Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg
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Thr Asn Gly Pro Lys Lys Gly Gly Gly Ser Lys
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<212> DNA
<213> Homo sapiens

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12

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gttcggcatc ctggcctgcc tcttcgtgga gctcttccag agctggcaga tcctggcgcg   2340

gccctggcgt gccttcttca agctgctggc tgtggtgctc ttcctcttca cctttgggct   2400

gctgccgtgg attgacaact tgcccacat ctcggggttc atcagtggcc tcttcctctc   2460

cttcgccttc ttgccctaca tcagctttgg caagttcgac ctgtaccgga aacgctgcca   2520

gatcatcatc tttcaggtgg tcttcctggg cctcctggct ggcctggtgg tcctcttcta   2580
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13

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cgtctatcct gtccgctgtg agtggtgtga gttcctcacc tgcatcccct tcactgacaa    2640

gttctgtgag aagtacgaac tggacgctca gctccactga gctggctgcg ggctccagcg    2700

gccgtgtgct ccagcaggcc agagccagac acgacctccc tgagcctcac aggcttacag    2760

gagtcacctg ctccatgtgg ggactggcct gtttcctgaa cacagacctc tttcttgtgc    2820

cttgttcact tctgttgaac ccctcgtact gccgggcatt tattatacta cttcctgtca    2880

taaccttcta acttgtttct tgacgaccac ctcatgtggc caataaatga actgggagcg    2940

ttttaaaaaa aaaaaaaaaa aaaa                                           2964
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<210> 10
<211> 855
<212> PRT
<213> Homo sapiens

<400> 10

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Met Ser Glu Ala Arg Arg Asp Ser Thr Ser Ser Leu Gln Arg Lys Lys
1               5                   10                  15


Pro Pro Trp Leu Lys Leu Asp Ile Pro Ser Ala Val Pro Leu Thr Ala
            20                  25                  30


Glu Glu Pro Ser Phe Leu Gln Pro Leu Arg Arg Gln Ala Phe Leu Arg
            35                  40                  45


Ser Val Ser Met Pro Ala Glu Thr Ala His Ile Ser Ser Pro His His
    50                  55                  60


Glu Leu Arg Arg Pro Val Leu Gln Arg Gln Thr Ser Ile Thr Gln Thr
65                  70                  75                  80


Ile Arg Arg Gly Thr Ala Asp Trp Phe Gly Val Ser Lys Asp Ser Asp
                85                  90                  95


Ser Thr Gln Lys Trp Gln Arg Lys Ser Ile Arg His Cys Ser Gln Arg
                100                 105                 110


Tyr Gly Lys Leu Lys Pro Gln Val Leu Arg Glu Leu Asp Leu Pro Ser
            115                 120                 125


Gln Asp Asn Val Ser Leu Thr Ser Thr Glu Thr Pro Pro Pro Leu Tyr
        130                 135                 140
```

14

Val Gly Pro Cys Gln Leu Gly Met Gln Lys Ile Ile Asp Pro Leu Ala
145   150   155   160

Arg Gly Arg Ala Phe Arg Val Ala Asp Asp Thr Ala Glu Gly Leu Ser
                165   170   175

Ala Pro His Thr Pro Val Thr Pro Gly Ala Ala Ser Leu Cys Ser Phe
            180   185   190

Ser Ser Ser Arg Ser Gly Phe His Arg Leu Pro Arg Arg Arg Lys Arg
        195   200   205

Glu Ser Val Ala Lys Met Ser Phe Arg Ala Ala Ala Ala Leu Met Lys
    210   215   220

Gly Arg Ser Val Arg Asp Gly Thr Phe Arg Arg Ala Gln Arg Arg Ser
225   230   235   240

Phe Thr Pro Ala Ser Phe Leu Glu Glu Asp Thr Thr Asp Phe Pro Asp
            245   250   255

Glu Leu Asp Thr Ser Phe Phe Ala Arg Glu Gly Ile Leu His Glu Glu
            260   265   270

Leu Ser Thr Tyr Pro Asp Glu Val Phe Glu Ser Pro Ser Glu Ala Ala
        275   280   285

Leu Lys Asp Trp Glu Lys Ala Pro Glu Gln Ala Asp Leu Thr Gly Gly
    290   295   300

Ala Leu Asp Arg Ser Glu Leu Glu Arg Ser His Leu Met Leu Pro Leu
305   310   315   320

Glu Arg Gly Trp Arg Lys Gln Lys Glu Gly Ala Ala Ala Pro Gln Pro
                325   330   335

Lys Val Arg Leu Arg Gln Glu Val Val Ser Thr Ala Gly Pro Arg Arg
            340   345   350

Gly Gln Arg Ile Ala Val Pro Val Arg Lys Leu Phe Ala Arg Glu Lys
        355   360   365

```
Arg Pro Tyr Gly Leu Gly Met Val Gly Arg Leu Thr Asn Arg Thr Tyr
    370               375               380

Arg Lys Arg Ile Asp Ser Phe Val Lys Arg Gln Ile Glu Asp Met Asp
385               390               395               400

Asp His Arg Pro Phe Phe Thr Tyr Trp Leu Thr Phe Val His Ser Leu
            405               410               415

Val Ala Ile Leu Ala Val Cys Ile Tyr Gly Ile Ala Pro Val Gly Phe
            420               425               430

Ser Gln His Glu Thr Val Asp Ser Val Leu Arg Asn Arg Gly Val Tyr
        435               440               445

Glu Asn Val Lys Tyr Val Gln Gln Glu Asn Phe Trp Ile Gly Pro Ser
    450               455               460

Ser Glu Ala Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys Met Arg
465               470               475               480

Gln Asp Pro Gln Val His Ser Phe Ile Arg Ser Ala Arg Glu Arg Glu
            485               490               495

Lys His Ser Ala Cys Cys Val Arg Asn Asp Arg Ser Gly Cys Val Gln
            500               505               510

Thr Ser Glu Glu Glu Cys Ser Ser Thr Leu Ala Val Trp Val Lys Trp
        515               520               525

Pro Ile His Pro Ser Ala Pro Glu Leu Ala Gly His Lys Arg Gln Phe
    530               535               540

Gly Ser Val Cys His Gln Asp Pro Arg Val Cys Asp Glu Pro Ser Ser
545               550               555               560

Glu Asp Pro His Glu Trp Pro Glu Asp Ile Thr Lys Trp Pro Ile Cys
            565               570               575

Thr Lys Asn Ser Ala Gly Asn His Thr Asn His Pro His Met Asp Cys
            580               585               590

Val Ile Thr Gly Arg Pro Cys Cys Ile Gly Thr Lys Gly Arg Cys Glu
```

16

Ile Thr Ser Arg Glu Tyr Cys Asp Phe Met Arg Gly Tyr Phe His Glu
    610   615   620

Glu Ala Thr Leu Cys Ser Gln Val His Cys Met Asp Asp Val Cys Gly
625   630   635   640

Leu Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln Phe Tyr Arg Leu
                645   650   655

Trp Leu Ser Leu Phe Leu His Ala Gly Ile Leu His Cys Leu Val Ser
                660   665   670

Ile Cys Phe Gln Met Thr Val Leu Arg Asp Leu Glu Lys Leu Ala Gly
                675   680   685

Trp His Arg Ile Ala Ile Ile Tyr Leu Leu Ser Gly Val Thr Gly Asn
    690   695   700

Leu Ala Ser Ala Ile Phe Leu Pro Tyr Arg Ala Glu Val Gly Pro Ala
705   710   715   720

Gly Ser Gln Phe Gly Ile Leu Ala Cys Leu Phe Val Glu Leu Phe Gln
                725   730   735

Ser Trp Gln Ile Leu Ala Arg Pro Trp Arg Ala Phe Phe Lys Leu Leu
                740   745   750

Ala Val Val Leu Phe Leu Phe Thr Phe Gly Leu Leu Pro Trp Ile Asp
    755   760   765

Asn Phe Ala His Ile Ser Gly Phe Ile Ser Gly Leu Phe Leu Ser Phe
    770   775   780

Ala Phe Leu Pro Tyr Ile Ser Phe Gly Lys Phe Asp Leu Tyr Arg Lys
785   790   795   800

Arg Cys Gln Ile Ile Ile Phe Gln Val Val Phe Leu Gly Leu Leu Ala
                805   810   815

Gly Leu Val Val Leu Phe Tyr Val Tyr Pro Val Arg Cys Glu Trp Cys
                820   825   830

17

Glu Phe Leu Thr Cys Ile Pro Phe Thr Asp Lys Phe Cys Glu Lys Tyr
      835   840   845

Glu Leu Asp Ala Gln Leu His
    850   855

<210> 11
<211> 2643
<212> DNA
<213> Homo sapiens

<400> 11
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ccgctgccct cctcaagggg cgctcggtgc tggatgccac cggacagcgg tgccgggtgg   120

tcaagcgcag ctttgccttc ccgagcttcc tggaggagga tgtggtcgat ggggcagaca   180

cgtttgactc ctcctttttt agtaaggaag aaatgagctc catgcctgat gatgtctttg   240

agtcccccccc actctctgcc agctacttcc gagggatccc acactcagcc tcccctgtct   300

cccccgatgg ggtgcaaatc cctctgaagg agtatggccg agccccagtc cccgggcccc   360

ggcgcggcaa gcgcatcgcc tccaaggtga agcactttgc ctttgatcgg aagaagcggc   420

actacggcct cggcgtggtg ggcaactggc tgaaccgcag ctaccgccgc agcatcagca   480

gcactgtgca gcggcagctg gagagcttcg acagccaccg gccctacttc acctactggc   540

tgaccttcgt ccatgtcatc atcacgctgc tggtgatttg cacgtatggc atcgcacccg   600

tgggctttgc ccagcacgtc accacccagc tggtgctgcg gaacaaaggt gtgtacgaga   660

gcgtgaagta catccagcag gagaacttct gggttggccc cagctcgatt gacctgatcc   720

acctgggggc caagttctca ccctgcatcc ggaaggacgg gcagatcgag cagctggtgc   780

tgcgcgagcg agacctggag cgggactcag gctgctgtgt ccagaatgac cactccggat   840

gcatccagac ccagcggaag gactgctcgg agactttggc cacttttgtc aagtggcagg   900

atgacactgg gccccccatg gacaagtctg atctgggcca gaagcggact tcgggggctg   960

tctgccacca ggaccccagg acctgcgagg agccagcctc cagcggtgcc cacatctggc   1020

ccgatgacat cactaagtgg ccgatctgca cagagcaggc caggagcaac cacacaggct   1080

tcctgcacat ggactgcgag atcaagggcc gcccctgctg catcggcacc aagggcagct   1140

gtgagatcac cacccgggaa tactgtgagt tcatgcacgg ctatttccat gaggaagcaa   1200

cactctgctc ccaggtgcac tgcttggaca aggtgtgtgg gctgctgccc ttcctcaacc   1260

18

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ctgaggtccc agatcagttc tacaggctct ggctgtctct cttcctacat gctggcgtgg    1320

tgcactgcct cgtgtctgtg gtctttcaaa tgaccatcct gagggacctg gagaagctgg    1380

ccggctggca ccgtatcgcc atcatcttca tcctcagtgg catcacaggc aacctcgcca    1440

gtgccatctt tctcccatac cgggcagagg tgggcccggc cggctcacag ttcggcctcc    1500

tcgcctgcct cttcgtggag ctcttccaga gctggccgct gctggagagg ccctggaagg    1560

ccttcctcaa cctctcggcc atcgtgctct tcctgttcat ctgtggcctc ttgccctgga    1620

tcgacaacat cgcccacatc ttcggcttcc tcagtggcct gctgctggcc ttcgccttcc    1680

tgccctacat caccttcggc accagcgaca gtaccgcaa gcgggcactc atcctggtgt     1740

cactgctggc ctttgccggc ctcttcgccg ccctcgtgct gtggctgtac atctacccca    1800

ttaactggcc ctggatcgag cacctcacct gcttcccctt caccagccgc ttctgcgaga    1860

agtatgagct ggaccaggtg ctgcactgac cgctgggcca cacggctgcc cctcagccct    1920

gctggaacag ggtctgcctg cgagggctgc cctctgcaga gcgctctctg tgtgccagag    1980

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ctgactccgc gtgagatggt tggttaaggc ggggtttttc tggggcgtga ggcctgtgag    2100

atcctgaccc aagctcaggc acacccaagg cacctgcctc tctgagtctt gggtctcagt    2160

tcctaatatc ccgctccttg ctgagaccat ctcctggggc agggtccttt tcttcccagg    2220

tcctcagcgc tgcctctgct ggtgccttct cccccactac tactggagcg tgcccttgct    2280

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ggaaaggctt tggccatggt ctggggggcag agaacaaggg gggagacaca agtagacctc    2460

aggtagaacg acaccgggcg gagccacccc agggcctgct cccagggagt gctcgaggcg    2520

catcaggccc gttttttacc agtttatatc acggtcttca tttttaaaag taacgctaac    2580

tttgtacgga cgatgtctca tggattaaat aatattcttt atggcaaaaa aaaaaaaaaa    2640

aaa                                                                   2643


<210>   12
<211>   619
<212>   PRT
<213>   Homo sapiens

<400>   12
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19

Met Ser Val Ala His Met Ser Leu Gln Ala Ala Ala Ala Leu Leu Lys
1   5   10   15

Gly Arg Ser Val Leu Asp Ala Thr Gly Gln Arg Cys Arg Val Val Lys
            20   25   30

Arg Ser Phe Ala Phe Pro Ser Phe Leu Glu Glu Asp Val Val Asp Gly
        35   40   45

Ala Asp Thr Phe Asp Ser Ser Phe Phe Ser Lys Glu Glu Met Ser Ser
    50   55   60

Met Pro Asp Asp Val Phe Glu Ser Pro Pro Leu Ser Ala Ser Tyr Phe
65   70   75   80

Arg Gly Ile Pro His Ser Ala Ser Pro Val Ser Pro Asp Gly Val Gln
            85   90   95

Ile Pro Leu Lys Glu Tyr Gly Arg Ala Pro Val Pro Gly Pro Arg Arg
            100   105   110

Gly Lys Arg Ile Ala Ser Lys Val Lys His Phe Ala Phe Asp Arg Lys
        115   120   125

Lys Arg His Tyr Gly Leu Gly Val Val Gly Asn Trp Leu Asn Arg Ser
    130   135   140

Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln Arg Gln Leu Glu Ser Phe
145   150   155   160

Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp Leu Thr Phe Val His Val
            165   170   175

Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr Gly Ile Ala Pro Val Gly
            180   185   190

Phe Ala Gln His Val Thr Thr Gln Leu Val Leu Arg Asn Lys Gly Val
        195   200   205

Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu Asn Phe Trp Val Gly Pro
    210   215   220

Ser Ser Ile Asp Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys Ile

20

Arg Lys Asp Gly Gln Ile Glu Gln Leu Val Leu Arg Glu Arg Asp Leu
              245   250   255

Glu Arg Asp Ser Gly Cys Cys Val Gln Asn Asp His Ser Gly Cys Ile
              260   265   270

Gln Thr Gln Arg Lys Asp Cys Ser Glu Thr Leu Ala Thr Phe Val Lys
              275   280   285

Trp Gln Asp Asp Thr Gly Pro Pro Met Asp Lys Ser Asp Leu Gly Gln
    290   295   300

Lys Arg Thr Ser Gly Ala Val Cys His Gln Asp Pro Arg Thr Cys Glu
305   310   315   320

Glu Pro Ala Ser Ser Gly Ala His Ile Trp Pro Asp Asp Ile Thr Lys
              325   330   335

Trp Pro Ile Cys Thr Glu Gln Ala Arg Ser Asn His Thr Gly Phe Leu
              340   345   350

His Met Asp Cys Glu Ile Lys Gly Arg Pro Cys Cys Ile Gly Thr Lys
              355   360   365

Gly Ser Cys Glu Ile Thr Thr Arg Glu Tyr Cys Glu Phe Met His Gly
    370   375   380

Tyr Phe His Glu Glu Ala Thr Leu Cys Ser Gln Val His Cys Leu Asp
385   390   395   400

Lys Val Cys Gly Leu Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln
              405   410   415

Phe Tyr Arg Leu Trp Leu Ser Leu Phe Leu His Ala Gly Val Val His
              420   425   430

Cys Leu Val Ser Val Val Phe Gln Met Thr Ile Leu Arg Asp Leu Glu
              435   440   445

Lys Leu Ala Gly Trp His Arg Ile Ala Ile Ile Phe Ile Leu Ser Gly
    450   455   460

21

```
Ile Thr Gly Asn Leu Ala Ser Ala Ile Phe Leu Pro Tyr Arg Ala Glu
465                 470                 475                 480


Val Gly Pro Ala Gly Ser Gln Phe Gly Leu Leu Ala Cys Leu Phe Val
                    485                 490                 495


Glu Leu Phe Gln Ser Trp Pro Leu Leu Glu Arg Pro Trp Lys Ala Phe
                500                 505                 510


Leu Asn Leu Ser Ala Ile Val Leu Phe Leu Phe Ile Cys Gly Leu Leu
            515                 520                 525


Pro Trp Ile Asp Asn Ile Ala His Ile Phe Gly Phe Leu Ser Gly Leu
        530                 535                 540


Leu Leu Ala Phe Ala Phe Leu Pro Tyr Ile Thr Phe Gly Thr Ser Asp
545                 550                 555                 560


Lys Tyr Arg Lys Arg Ala Leu Ile Leu Val Ser Leu Leu Ala Phe Ala
                565                 570                 575


Gly Leu Phe Ala Ala Leu Val Leu Trp Leu Tyr Ile Tyr Pro Ile Asn
                580                 585                 590


Trp Pro Trp Ile Glu His Leu Thr Cys Phe Pro Phe Thr Ser Arg Phe
            595                 600                 605


Cys Glu Lys Tyr Glu Leu Asp Gln Val Leu His
        610                 615



<210>    13
<211>    1305
<212>    DNA
<213>    Homo sapiens

<400>    13
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aactgccgcg aggaggcgga aggagcagag gaccggcagc cggcgtcgag gcggggcgcg       120

ggaacgacgg cggccatggc ggcctcgggg cccgggtgtc gcagctggtg cttgtgtccc       180

gaggtgccat ccgccacctt cttcactgcg ctgctctcgc tgctggtttc cgggcctcgc       240

ctgttcctgc tgcagcagcc cctggcgccc tcgggcctca cgctgaagtc cgaggccctt       300
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22

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cgcaactggc aagtttacag gctggtaacc tacatctttg tctacgagaa tcccatctcc      360

ctgctctgcg gcgctatcat catctggcgc tttgctggca atttcgagag aaccgtgggc      420

accgtccgcc actgcttctt caccgtgatc ttcgccatct tctccgctat catcttcctg      480

tcattcgagg ctgtgtcatc actgtcaaag ctgggggaag tggaggatgc cagaggtttc      540

accccagtgg cctttgccat gctgggagtc accaccgtcc gttctcggat gaggcgggcc      600

ctggtgtttg gcatggttgt gccctcagtc ctggttccgt ggctcctgct gggtgcctcg      660

tggctcattc cccagacctc tttcctcagt aatgtctgcg ggctgtccat cgggctggcc      720

tatgctcacc tactgctatt ccatcgacct ctcagagcga gtggcgctga agctcgatca      780

gaccttcccc ttcagcctga tgaggaggat atccgtgttc aagtacgtct cagggtcttc      840

agccgagagg agggcagccc agagccggaa actgaacccg gtgcctggct cctaccccac      900

acagagctgc accctcacc tgtccccaag ccaccctgtg tcccagacgc agcacgccag      960

tggtcagaag ctggcctcct ggcctcctgc accccgggc acatgcccac cttgcctccg      1020

taccagcctg cctccggcct gtgctatgtg cagaaccact ttggtccaaa ccccacctcc      1080

tccagtgtct acccagcttc tgcgggcacc tccctgggca tccagccccc cacgcctgtg      1140

aacagccctg gcacggtgta ttctggggcc ttgggacacc aggggctgca ggctccaagg      1200

agtcctccag ggtccccatg ccctgagaga atttctaggg aagtcatctc acttggcctt      1260

ctgaaggtcc tccctaagag tctcctgaca aaagttactt attga                      1305


<210>   14
<211>   434
<212>   PRT
<213>   Homo sapiens

<400>   14

Met Gly Arg Gly Leu Trp Glu Ala Trp Pro Pro Ala Gly Ser Ser Ala
1               5                   10                  15


Val Ala Lys Gly Asn Cys Arg Glu Glu Ala Glu Gly Ala Glu Asp Arg
                20                  25                  30


Gln Pro Ala Ser Arg Arg Gly Ala Gly Thr Thr Ala Ala Met Ala Ala
            35                  40                  45


Ser Gly Pro Gly Cys Arg Ser Trp Cys Leu Cys Pro Glu Val Pro Ser
        50                  55                  60
```

23

Ala Thr Phe Phe Thr Ala Leu Leu Ser Leu Leu Val Ser Gly Pro Arg
65   70   75   80

Leu Phe Leu Leu Gln Gln Pro Leu Ala Pro Ser Gly Leu Thr Leu Lys
                85   90   95

Ser Glu Ala Leu Arg Asn Trp Gln Val Tyr Arg Leu Val Thr Tyr Ile
            100   105   110

Phe Val Tyr Glu Asn Pro Ile Ser Leu Leu Cys Gly Ala Ile Ile Ile
            115   120   125

Trp Arg Phe Ala Gly Asn Phe Glu Arg Thr Val Gly Thr Val Arg His
    130   135   140

Cys Phe Phe Thr Val Ile Phe Ala Ile Phe Ser Ala Ile Ile Phe Leu
145   150   155   160

Ser Phe Glu Ala Val Ser Ser Leu Ser Lys Leu Gly Glu Val Glu Asp
                165   170   175

Ala Arg Gly Phe Thr Pro Val Ala Phe Ala Met Leu Gly Val Thr Thr
                180   185   190

Val Arg Ser Arg Met Arg Arg Ala Leu Val Phe Gly Met Val Val Pro
            195   200   205

Ser Val Leu Val Pro Trp Leu Leu Leu Gly Ala Ser Trp Leu Ile Pro
    210   215   220

Gln Thr Ser Phe Leu Ser Asn Val Cys Gly Leu Ser Ile Gly Leu Ala
225   230   235   240

Tyr Ala His Leu Leu Leu Phe His Arg Pro Leu Arg Ala Ser Gly Ala
                245   250   255

Glu Ala Arg Ser Asp Leu Pro Leu Gln Pro Asp Glu Glu Asp Ile Arg
            260   265   270

Val Gln Val Arg Leu Arg Val Phe Ser Arg Glu Glu Gly Ser Pro Glu
            275   280   285

24

```
Pro Glu Thr Glu Pro Gly Ala Trp Leu Leu Pro His Thr Glu Leu Pro
    290                 295                 300

Pro Ser Pro Val Pro Lys Pro Pro Cys Val Pro Asp Ala Ala Arg Gln
305                 310                 315                 320

Trp Ser Glu Ala Gly Leu Leu Ala Ser Cys Thr Pro Gly His Met Pro
                325                 330                 335

Thr Leu Pro Pro Tyr Gln Pro Ala Ser Gly Leu Cys Tyr Val Gln Asn
                340                 345                 350

His Phe Gly Pro Asn Pro Thr Ser Ser Ser Val Tyr Pro Ala Ser Ala
        355                 360                 365

Gly Thr Ser Leu Gly Ile Gln Pro Pro Thr Pro Val Asn Ser Pro Gly
    370                 375                 380

Thr Val Tyr Ser Gly Ala Leu Gly His Gln Gly Leu Gln Ala Pro Arg
385                 390                 395                 400

Ser Pro Pro Gly Ser Pro Cys Pro Glu Arg Ile Ser Arg Glu Val Ile
                405                 410                 415

Ser Leu Gly Leu Leu Lys Val Leu Pro Lys Ser Leu Leu Thr Lys Val
                420                 425                 430

Thr Tyr


<210>   15
<211>   1738
<212>   DNA
<213>   Homo sapiens

<400>   15
tgctgactaa tccgcgggcc gcggggaatg ggtggcgcgc cagccggtcg gcaggggtca      60

cgcggccggg tgtgcgcgga atggattcag ggttctcggg tcgcgcccgg gagctagagt     120

cctgactccc agccggggtc cccgaccggc ctttcggggt tgccgggcgc gctctgcaaa     180

ggggaaactg aggcccaagg aaattgagta tctctgcaaa gtcaccagct gagttcgaac     240

cagacagatc ctgggacccc ctactctatc cgccaccgga agaatctccg tccttgtctt     300
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25

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tccattctgc cctcccggct tcccagtaag cacacagccc caggaccacc cttgaccgtc      360

ctcaaccaag cgatgcatgc caggggcccc catggccaac tgtccccagc actgcctctg      420

gcctcctcag tcctgatgct gctgatgagc accctgtggc tggtggggggc cggccccggc      480

ctggtcctgg ccccggagct gttgctggac ccctggcagg tgcaccggct gctgacccat      540

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ggctggcagc aggagtgcca cctgggcacg ctgagattcc tgcatgcctc agccctgctc      660

gccctggctt ctgggctgct ggcagtgctg ctggcaggcc ttgggctgtc cagtgcagcc      720

ggcagctgtg gatacatgcc tgtccacctg gccatgctgg ctggggaggg acaccgccct      780

agacggcccc gtggggcact gccaccgtgg ctgtcgccgt ggctgctgct tgccctgacc      840

ccactgctca gctctgagcc acccttcctg cagctccttt gcggcctcct tgccggcctg      900

gcctatgcag ctggggcctt ccggtggctg gaaccctcag agcgacggct gcaggtgctg      960

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tcactgttgg ttggaggaca agtgggcact gagaccctgg tgacccatgg aaagggtggg      1500

cctgcccact ccgagggtcc tgggcctccc tagcccaggc agagagtggg gcacaggcag      1560

gcccttgggt gctaagggct gggctgcatg tgggtagccc gagctcctac tctgtctaaa      1620

gagggccaca gtggggagca ggggcacctc tggaggcagg agaggccccc cagcatgctg      1680

ccctagtacg tgtttagaat aaaaaccagt ttgtttttca acctggacct ccttggag       1738
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<210> 16
<211> 386
<212> PRT
<213> Homo sapiens

<400> 16

Met His Ala Arg Gly Pro His Gly Gln Leu Ser Pro Ala Leu Pro Leu

26

Ala Ser Ser Val Leu Met Leu Leu Met Ser Thr Leu Trp Leu Val Gly
            20   25   30

Ala Gly Pro Gly Leu Val Leu Ala Pro Glu Leu Leu Leu Asp Pro Trp
            35   40   45

Gln Val His Arg Leu Leu Thr His Ala Leu Gly His Thr Ala Leu Pro
        50   55   60

Gly Leu Leu Leu Ser Leu Leu Leu Leu Pro Thr Val Gly Trp Gln Gln
65   70   75   80

Glu Cys His Leu Gly Thr Leu Arg Phe Leu His Ala Ser Ala Leu Leu
                85   90   95

Ala Leu Ala Ser Gly Leu Leu Ala Val Leu Leu Ala Gly Leu Gly Leu
            100   105   110

Ser Ser Ala Ala Gly Ser Cys Gly Tyr Met Pro Val His Leu Ala Met
        115   120   125

Leu Ala Gly Glu Gly His Arg Pro Arg Arg Pro Arg Gly Ala Leu Pro
    130   135   140

Pro Trp Leu Ser Pro Trp Leu Leu Leu Ala Leu Thr Pro Leu Leu Ser
145   150   155   160

Ser Glu Pro Pro Phe Leu Gln Leu Leu Cys Gly Leu Leu Ala Gly Leu
                165   170   175

Ala Tyr Ala Ala Gly Ala Phe Arg Trp Leu Glu Pro Ser Glu Arg Arg
            180   185   190

Leu Gln Val Leu Gln Glu Gly Val Leu Cys Arg Thr Leu Ala Gly Cys
            195   200   205

Trp Pro Leu Arg Leu Leu Ala Thr Pro Gly Ser Leu Ala Glu Leu Pro
    210   215   220

Val Thr His Pro Ala Gly Val Arg Pro Pro Ile Pro Gly Pro Pro Tyr
225   230   235   240

27

Val Ala Ser Pro Asp Leu Trp Ser His Trp Glu Asp Ser Ala Leu Pro
                245   250   255

Pro Pro Ser Leu Arg Pro Val Gln Pro Thr Trp Glu Gly Ser Ser Glu
                260   265   270

Ala Gly Leu Asp Trp Ala Gly Ala Ser Phe Ser Pro Gly Thr Pro Met
        275   280   285

Trp Ala Ala Leu Asp Glu Gln Met Leu Gln Glu Gly Ile Gln Ala Ser
    290   295   300

Leu Leu Asp Gly Pro Ala Gln Glu Pro Gln Ser Ala Pro Trp Leu Ser
305   310   315   320

Lys Ser Ser Val Ser Ser Leu Arg Leu Gln Gln Leu Glu Arg Met Gly
                325   330   335

Phe Pro Thr Glu Gln Ala Val Val Ala Leu Ala Ala Thr Gly Arg Val
            340   345   350

Glu Gly Ala Val Ser Leu Leu Val Gly Gly Gln Val Gly Thr Glu Thr
        355   360   365

Leu Val Thr His Gly Lys Gly Gly Pro Ala His Ser Glu Gly Pro Gly
    370   375   380

Pro Pro
385

<210>   17
<211>   19
<212>   PRT
<213>   Homo sapiens

<400>   17

Met Gly Arg Val Glu Asp Gly Gly Thr Thr Glu Glu Leu Glu Asp Trp
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Asp Pro Gly

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<211> 1559
<212> DNA
<213> Homo sapiens

<400> 18

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cccagggaac agacaggcac ggggcccctg tcccaaaagt gctgggagcc tgagcctgat    180

gctcccagcc agcctggccc agccctttgg tccaggggtc gggcccgcac tcaggccttg    240

gctggcggct cctcactgca gcagctggac cccgagaaca caggcttcat cggtgcggac    300

accttcactg gcctggtgca cagccatgag ctgcccctgg acccggccaa gctggacatg    360

ctggtggccc tggctcagag caacgagcag ggccaggtct gctaccagga gctggtggac    420

ctgatcagca gcaagcgctc cagcagtttc aagcgggcca ttgctaacgg acagcgggca    480

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cgcagctgcc cacccccgt gttcatggcc tcggtcactc ttgcccagat catcgtgttc    660

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tccggcgggg tctacgccct gtgctcggca cacctggcca acgttgtcat gaactgggct   1020

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gcccacatcc ccccaccgcc ctgaccggct acctgaggct gcacaggcca gggctcgggc   1380

atgtggtggc cgcccaccag gggccttcac gtctgccctt tgtgaacgga cgtctcaggg   1440

ctgctgtgcc ccttgggtgt gggtggcctc aaaggaggcc ctgtcccagc cacccacccc   1500

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29

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<213>  Homo sapiens

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ggtattccct tggaaatggt ccacaaaggc ctccgtgtgg ggctggtgta cctggcagga     240

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tcaggaggag tctatgctct gatgggaggc tattttatga atgttctggt gaattttcaa     360

gaaatgattc ctgcctttgg aattttcaga ctgctgatca tcatcctgat aattgtgttg     420

gacatgggat ttgctctcta tagaaggttc tttgttcctg aagatgggtc tccggtgtct     480

tttgcagctc acattgcagg tggatttgct ggaatgtcca ttggctacac ggtgtttagc     540

tgctttgata aagcactgct gaaagatcca aggttatgga tagcaattgc tgc            593



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<212>  DNA
<213>  Homo sapiens

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acctagggcc acctgctgtt ccctgggatt catgtccttc tggggaggag ggaggaccca     240

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agatgaaaga agagctggag gaagaggaga aaatgagaga ggatggggga ggtaaagatc     360

gggccaagag taaaaaggtc cacaggattg tctcaaaatg gatgctgccc gaaaagtccc     420

gaggaacata cttggagaga gctaactgct cccgcctcc cgtgttcatc atctccatca     480

gcctggccga gctggcagtg tttatttact atgctgtgtg gaagcctcag aaacagtgga     540

tcacgttgga cacaggcatc ttggagagtc cctttatcta cagtcctgag aagagggagg     600

aagcctggag gtttatctca tacatgctgg tacatgctgg gtaagcaatg atagttaagc     660
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30

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cctggtatca gaggtgatta tatcattgta acctcttaaa acaaaaaa                708
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ctcttttat taattgactt acaataggg caggtcagtt tgctggagat aggaaaatgt    240

tgaaaaacac agcaaataag acacaagcta aatatgcagc aattgctatc caaaaccttg    300

gatctttcat cagtgcttta tcaaagcagc taaacaccgt gtagccaatg gacattccag    360

caaatccacc tgcaatgtga gctgcaaaag acaccggaga cccatcttca ggaacaaaga    420

accttctata gagagcaaat cccatgtcca acacaattat caggatgatg atcagcagtc    480

tgaaaattcc aaaggcanga atcatttctt gaaaattcac cagaacattc ataaaatagc    540

ctcccatcag agcatagact cctcctgaag ctcccacaag atatctgagt gggtcaaaga    600

tggagctggc aaggga                                                   616
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<400>    22
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ggaatctttg tatgcagctt gttttgggta ttcccttgga aatggtccac aaaggcctcc    180

gtgtggggct ggtgtacctg gcaggagtga ttgcagggtc ccttgccagc tccatctttg    240

acccactcag atatcttgtg ggagcttcag gaggagtcta tgctctgatg ggaggctatt    300

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31

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<211>  356
<212>  DNA
<213>  Homo sapiens

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gatggagagc atgaatctga atatggggag agagatgaaa gaagagctgg aggaagagga     300

gaaaatgaga gaggatgggg gaggtaaaga tcgggccaag agtaaaaagg tccacn        356


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<212>  DNA
<213>  Homo sapiens

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gcaaactgac ctgcccctat tgtaagtcaa ttaataaaaa gagccatctg gaggaaataa    240

aaaaaaaagg aagactctat gaagaaacag agaagtctca gcaaaggcta acaattttat    300

atagaggaca aaacagcatt aaactcatca gttgcaaaga ttgcctataa aaggacctta    360

ggatttaagg aaggggcttc ttaatgtaga aagggaagaa gaagagagaa aagaagggta    420

gtaaaaacta gagattgggg ccaggcgcag tggctcacgc ctgtaatccc agcactttgg    480

gaggctgagg cgggtgaaat cacctgaggt catgagttca agac                     524


<210>  25
<211>  428
<212>  DNA
<213>  Homo sapiens

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ttctgagact tctctgtttc ttcatagagt cttccttttt tttattattt cctccagatg      180

gctctttta ttaattgact tacaataggg gcaggtcagt ttgctggaga taggaaaatg       240

ttgaaaaaca cagcaaataa gacacaagct aaatatgcag caattgctat ccaaaacctt      300

ggatctttca gcagtgcttt atcaaagcag ctaaacaccg tgtagccaat ggacattcca      360

gcaaatccac ctgcaatgtg agctgcaaaa gacaccttgg gagaaaagga gggaaaatgg      420

aaataagt                                                               428


<210>   26
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aaaaccttgg atctttcagc agtgctttat caaagcagct aaacaccgtg tagccaatgg      120

acattccagc aaatccacct gcaatgtgag ctgcaaaaga cacctgggag aaaaggaggg      180

aaaatggaaa tcagtgaaga caatgctaat tgtgtatttc agttgcatct ctcttattca      240

aacacaaata ccgtcacagt taaacaagcg t                                     271


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aaatccacct gcaatgtgag ctgcaaaaga caccttggga gaaaggagg gaaaatggaa       180

ataagtgaag acaatgctaa ttgtgtattt cagttgcatc tctcttattc aaacacaaat      240

accgtcacag ttaaacaagc gt                                               262


<210>   28
<211>   120
<212>   DNA
<213>   Homo sapiens

<400>   28
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33

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<212> DNA
<213> Homo sapiens

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ggcgctacct gacatacatc ttcatgcatg cagggtatag aacacctgga ctcaatgtgg   120

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tgtctacgtg gccggtgttg tggcagggtc cttggcagtg tctagtggct gacatgaccg   240

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agcgggcaaa cacgcacaaa cactgcgcct gtattgtgtt atttggccac gggggcacct   780

ctgcgaaggg ctgcgggcga aacacaagac aaacggacta acacaagaac aagggggcgaa   840

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<210> 30
<211> 344
<212> DNA
<213> Homo sapiens

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<223> "n" is A, C, G, or T

<220>
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<223> "n" is A, C, G, or T

34

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aagaaacctn gcaggcgctc cctgtgggtg ctgcttttcc ctccctccc cgaccttggg      180

cctccagccc tcaggggga ggcggcagct ttaagtccag cagggtgtag gcaaagatgt      240

tccagaagac agcgaacagc acgaagacgg tgtacatggc cacaaaaatc caccacagtg     300

actggtcctg gagcctctgc tcgtagttcc tcaggaccac cacg                      344


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<212>  DNA
<213>  Homo sapiens

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gaacctcgaa gatcagaccc agggacaagt ggtgaagcat acaagagaag tgctttgatt     240

cctcctgtgg aagaaacagt cttttatcct tctccctatc ctataaggag tctcataaaa     300

cctttatttt ttactgttgg gtttacaggc tgtgcatttg gatcagctgc tatttggcaa     360

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cacatggcag caaatatgta tgtttgtgg agcttctctt ccagcatagt gaacattctg      720
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tttggaatat ggtatgttac ttacggtcat gaactgattt ggaagaacag ggagccgcta   1080

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<210>   32
<211>   2964
<212>   DNA
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caagagcatc cgtcactgca gccagcgcta cgggaagctg aagccccagg tcctccggga   480

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gcggcggcgc aagcgagagt cggtggccaa gatgagcttc cgggcggccg cagcgctgat   780

gaaaggccgc tccgttaggg atggcacctt cgccgggca cagcgtcgaa gcttcactcc   840

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cgggggccctg gaccgcagcg agcttgagcg cagccacctg atgctgccct ggagcgagg   1080

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gcaggtgcac agcttcattc gctcggcgcg cgagcgcgag aagcactccg cctgctgcgt    1620

gcgcaacgac aggtcgggct gcgtgcagac ctcggaggag gagtgctcgt ccacgctggc    1680

agtgtgggtg aagtggccca tccatcccag cgccccagag cttgcgggcc acaagagaca    1740

gtttggctct gtctgccacc aggatcccag ggtgtgtgat gagccctcct ccgaagaccc    1800

tcatgagtgg ccagaagaca tcaccaagtg gccgatctgc accaaaaaca gcgctgggaa    1860

ccacaccaac catccccaca tggactgtgt catcacagga cggccctgct gcattggcac    1920

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cgtctatcct gtccgctgtg agtggtgtga gttcctcacc tgcatcccct tcactgacaa    2640

gttctgtgag aagtacgaac tggacgctca gctccactga gctggctgcg ggctccagcg    2700

gccgtgtgct ccagcaggcc agagccagac acgacctccc tgagcctcac aggcttacag    2760

gagtcacctg ctccatgtgg ggactggcct gtttcctgaa cacagacctc tttcttgtgc    2820
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37

cttgttcact tctgttgaac ccctcgtact gccgggcatt tattatacta cttcctgtca   2880

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tttttaaaaa aaaaaaaaaa aaaa   2964

<210>   33
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<212>   DNA
<213>   Homo sapiens

<400>   33
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tcaagcgcag ctttgccttc ccgagcttcc tggaggagga tgtggtcgat ggggcagaca   180

cgtttgactc ctcctttttt agtaaggaag aaatgagctc catgcctgat gatgtctttg   240

agtcccccc actctctgcc agctacttcc gagggatccc acactcagcc tcccctgtct   300

cccccgatgg ggtgcaaatc cctctgaagg agtatggccg agccccagtc cccgggcccc   360

ggcgcggcaa gcgcatcgcc tccaaggtga agcactttgc ctttgatcgg aagaagcggc   420

actacggcct cggcgtggtg ggcaactggc tgaaccgcag ctaccgccgc agcatcagca   480

gcactgtgca gcggcagctg gagagcttcg acagccaccg gccctacttc acctactggc   540

tgaccttcgt ccatgtcatc atcacgctgc tggtgatttg cacgtatggc atcgcacccg   600

tgggctttgc ccagcacgtc accacccagc tggtgctgcg gaacaaaggt gtgtacgaga   660

gcgtgaagta catccagcag gagaacttct gggttggccc cagctcgatt gacctgatcc   720

acctgggggc caagttctca ccctgcatcc ggaaggacgg gcagatcgag cagctggtgc   780

tgcgcgagcg agacctggag cgggactcag gctgctgtgt ccagaatgac cactccggat   840

gcatccagac ccagcggaag gactgctcgg agactttggc cactttgtc aagtggcagg   900

atgacactgg gcccccatg gacaagtctg atctgggcca gaagcggact tcgggggctg   960

tctgccacca ggaccccagg acctgcgagg agccagcctc cagcggtgcc cacatctggc   1020

ccgatgacat cactaagtgg ccgatctgca cagagcaggc caggagcaac cacacaggct   1080

tcctgcacat ggactgcgag atcaagggcc gccctgctg catcggcacc aagggcagct   1140

gtgagatcac cacccgggaa tactgtgagt tcatgcacgg ctatttccat gaggaagcaa   1200

cactctgctc ccaggtgcac tgcttggaca aggtgtgtgg gctgctgccc ttcctcaacc   1260

ctgaggtccc agatcagttc tacaggctct ggctgtctct cttcctacat gctggcgtgg   1320

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tgcactgcct cgtgtctgtg gtctttcaaa tgaccatcct gagggacctg gagaagctgg    1380

ccggctggca ccgtatcgcc atcatcttca tcctcagtgg catcacaggc aacctcgcca    1440

gtgccatctt tctcccatac cgggcagagg tgggcccggc cggctcacag ttcggcctcc    1500

tcgcctgcct cttcgtggag ctcttccaga gctggccgct gctggagagg ccctggaagg    1560

ccttcctcaa cctctcggcc atcgtgctct tcctgttcat ctgtggcctc ttgccctgga    1620

tcgacaacat cgcccacatc ttcggcttcc tcagtggcct gctgctggcc ttcgccttcc    1680

tgccctacat caccttcggc accagcgaca agtaccgcaa gcgggcactc atcctggtgt    1740

cactgctggc ctttgccggc ctcttcgccg ccctcgtgct gtggctgtac atctacccca    1800

ttaactggcc ctggatcgag cacctcacct gcttcccctt caccagccgc ttctgcgaga    1860

agtatgagct ggaccaggtg ctgcactgac cgctgggcca cacggctgcc cctcagccct    1920

gctggaacag ggtctgcctg cgagggctgc cctctgcaga gcgctctctg tgtgccagag    1980

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ctgactccgc gtgagatggt tggttaaggc ggggtttttc tggggcgtga ggcctgtgag    2100

atcctgaccc aagctcaggc acacccaagg cacctgcctc tctgagtctt gggtctcagt    2160

tcctaatatc ccgctccttg ctgagaccat ctcctggggc agggtccttt cttcccagg    2220

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ggaaaggctt tggccatggt ctggggggcag agaacaaggg gggagacaca agtagacctc    2460

aggtagaacg acaccgggcg gagccacccc agggcctgct cccagggagt gctcgaggcg    2520

catcaggccc gtttttttacc agtttatatc acggtcttca tttttaaaag taacgctaac    2580

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aaa                                                                   2643


<210>  34
<211>  1305
<212>  DNA
<213>  Homo sapiens

<400>  34
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aactgccgcg aggaggcgga aggagcagag gaccggcagc cggcgtcgag gcggggcgcg    120
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39

ggaacgacgg cggccatggc ggcctcgggg cccgggtgtc gcagctggtg cttgtgtccc   180

gaggtgccat ccgccacctt cttcactgcg ctgctctcgc tgctggtttc cgggcctcgc   240

ctgttcctgc tgcagcagcc cctggcgccc tcgggcctca cgctgaagtc cgaggccctt   300

cgcaactggc aagtttacag gctggtaacc tacatctttg tctacgagaa tcccatctcc   360

ctgctctgcg gcgctatcat catctggcgc tttgctggca atttcgagag aaccgtgggc   420

accgtccgcc actgcttctt caccgtgatc ttcgccatct tctccgctat catcttcctg   480

tcattcgagg ctgtgtcatc actgtcaaag ctgggggaag tggaggatgc cagaggtttc   540

accccagtgg cctttgccat gctgggagtc accaccgtcc gttctcggat gaggcgggcc   600

ctggtgtttg gcatggttgt gccctcagtc ctggttccgt ggctcctgct gggtgcctcg   660

tggctcattc cccagacctc tttcctcagt aatgtctgcg ggctgtccat cgggctggcc   720

tatgctcacc tactgctatt ccatcgacct ctcagagcga gtggcgctga agctcgatca   780

gaccttcccc ttcagcctga tgaggaggat atccgtgttc aagtacgtct cagggtcttc   840

agccgagagg agggcagccc agagccggaa actgaacccg gtgcctggct cctaccccac   900

acagagctgc caccctcacc tgtccccaag ccaccctgtg tcccagacgc agcacgccag   960

tggtcagaag ctggcctcct ggcctcctgc accccggggc acatgcccac cttgcctccg   1020

taccagcctg cctccggcct gtgctatgtg cagaaccact ttggtccaaa ccccacctcc   1080

tccagtgtct acccagcttc tgcgggcacc tccctgggca tccagccccc cacgcctgtg   1140

aacagccctg gcacggtgta ttctgggggcc ttgggacacc aggggctgca ggctccaagg   1200

agtcctccag ggtccccatg ccctgagaga atttctaggg aagtcatctc acttggcctt   1260

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<210>   35
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<212>   DNA
<213>   Homo sapiens

<400>   35
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cgcggccggg tgtgcgcgga atggattcag ggttctcggg tcgcgcccgg gagctagagt   120

cctgactccc agccggggtc cccgaccggc ctttcggggt gccgggcgc gctctgcaaa   180

ggggaaactg aggcccaagg aaattgagta tctctgcaaa gtcaccagct gagttcgaac   240

cagacagatc ctgggacccc ctactctatc cgccaccgga agaatctccg tccttgtctt   300

40

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tccattctgc cctccggct tcccagtaag cacacagccc caggaccacc cttgaccgtc    360

ctcaaccaag cgatgcatgc caggggcccc catggccaac tgtccccagc actgcctctg    420

gcctcctcag tcctgatgct gctgatgagc accctgtggc tggtggggggc cggccccggc    480

ctggtcctgg ccccggagct gttgctggac ccctggcagg tgcaccggct gctgacccat    540

gccctgggcc acacggccct gccaggcctg ctcctgagcc tgctgctcct gcccactgtg    600

ggctggcagc aggagtgcca cctgggcacg ctgagattcc tgcatgcctc agccctgctc    660

gccctggctt ctgggctgct ggcagtgctg ctggcaggcc ttgggctgtc cagtgcagcc    720

ggcagctgtg gatacatgcc tgtccacctg gccatgctgg ctggggaggg acaccgccct    780

agacggcccc gtggggcact gccaccgtgg ctgtcgccgt ggctgctgct tgccctgacc    840

ccactgctca gctctgagcc acccttcctg cagctccttt gcggcctcct tgccggcctg    900

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gagggccaca gtggggagca ggggcacctc tggaggcagg agaggccccc cagcatgctg    1680

ccctagtacg tgtttagaat aaaaaccagt ttgttttca acctggacct ccttggag     1738
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<210> 36
<211> 438
<212> PRT
<213> Homo sapiens

<400> 36

41

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Met Gly Arg Val Glu Asp Gly Gly Thr Thr Glu Glu Leu Glu Asp Trp
1               5                   10                  15


Asp Pro Gly Thr Ser Ala Leu Pro Ala Pro Gly Ile Lys Gln Gly Pro
            20                  25                  30


Arg Glu Gln Thr Gly Thr Gly Pro Leu Ser Gln Lys Cys Trp Glu Pro
        35                  40                  45


Glu Pro Asp Ala Pro Ser Gln Pro Gly Pro Ala Leu Trp Ser Arg Gly
    50                  55                  60


Arg Ala Arg Thr Gln Ala Leu Ala Gly Gly Ser Ser Leu Gln Gln Leu
65                      70                  75                  80


Asp Pro Glu Asn Thr Gly Phe Ile Gly Ala Asp Thr Phe Thr Gly Leu
                85                  90                  95


Val His Ser His Glu Leu Pro Leu Asp Pro Ala Lys Leu Asp Met Leu
                100                 105                 110


Val Ala Leu Ala Gln Ser Asn Glu Gln Gly Gln Val Cys Tyr Gln Glu
        115                 120                 125


Leu Val Asp Leu Ile Ser Ser Lys Arg Ser Ser Ser Phe Lys Arg Ala
    130                 135                 140


Ile Ala Asn Gly Gln Arg Ala Leu Pro Arg Asp Gly Pro Leu Asp Glu
145                 150                 155                 160


Pro Gly Leu Gly Val Tyr Lys Arg Phe Val Arg Tyr Val Ala Tyr Glu
                165                 170                 175


Ile Leu Pro Cys Glu Val Asp Arg Arg Trp Tyr Phe Tyr Arg His Arg
            180                 185                 190


Ser Cys Pro Pro Pro Val Phe Met Ala Ser Val Thr Leu Ala Gln Ile
            195                 200                 205


Ile Val Phe Leu Cys Tyr Gly Ala Arg Leu Asn Lys Trp Val Leu Gln
    210                 215                 220


Thr Tyr His Pro Glu Tyr Met Lys Ser Pro Leu Val Tyr His Pro Gly
```

42

His Arg Ala Arg Ala Trp Arg Phe Leu Thr Tyr Met Phe Met His Val
            245   250   255

Gly Leu Glu Gln Leu Gly Phe Asn Ala Leu Leu Gln Leu Met Ile Gly
            260   265   270

Val Pro Leu Glu Met Val His Gly Leu Leu Arg Ile Ser Leu Leu Tyr
            275   280   285

Leu Ala Gly Val Leu Ala Gly Ser Leu Thr Val Ser Ile Thr Asp Met
    290   295   300

Arg Ala Pro Val Val Gly Gly Ser Gly Gly Val Tyr Ala Leu Cys Ser
305   310   315   320

Ala His Leu Ala Asn Val Val Met Asn Trp Ala Gly Met Arg Cys Pro
                325   330   335

Tyr Lys Leu Leu Arg Met Val Leu Ala Leu Val Cys Met Ser Ser Glu
            340   345   350

Val Gly Arg Ala Val Trp Leu Arg Phe Ser Pro Pro Leu Pro Ala Ser
            355   360   365

Gly Pro Gln Pro Ser Phe Met Ala His Leu Ala Gly Ala Val Val Gly
    370   375   380

Val Ser Met Gly Leu Thr Ile Leu Arg Ser Tyr Glu Glu Arg Leu Arg
385   390   395   400

Asp Gln Cys Gly Trp Trp Val Val Leu Leu Ala Tyr Gly Thr Phe Leu
            405   410   415

Leu Phe Ala Val Phe Trp Asn Val Phe Ala Tyr Asp Leu Leu Gly Ala
            420   425   430

His Ile Pro Pro Pro Pro
            435

<210> 37
<211> 292

<212>   PRT
<213>   Homo sapiens

<400>   37

Met Asn Leu Asn Met Gly Arg Glu Met Lys Glu Glu Leu Glu Glu Glu
1   5   10   15

Glu Lys Met Arg Glu Asp Gly Gly Gly Lys Asp Arg Ala Lys Ser Lys
            20   25   30

Lys Val His Arg Ile Val Ser Lys Trp Met Leu Pro Glu Lys Ser Arg
            35   40   45

Gly Thr Tyr Leu Glu Arg Ala Asn Cys Phe Pro Pro Pro Val Phe Ile
        50   55   60

Ile Ser Ile Ser Leu Ala Glu Leu Ala Val Phe Ile Tyr Tyr Ala Val
65   70   75   80

Trp Lys Pro Gln Lys Gln Trp Ile Thr Leu Asp Thr Gly Ile Leu Glu
                85   90   95

Ser Pro Phe Ile Tyr Ser Pro Glu Lys Arg Glu Glu Ala Trp Arg Phe
                100   105   110

Ile Ser Tyr Met Leu Val His Ala Gly Val Gln His Ile Leu Gly Asn
            115   120   125

Leu Cys Met Gln Leu Val Leu Gly Ile Pro Leu Glu Met Val His Lys
    130   135   140

Gly Leu Arg Val Gly Leu Val Tyr Leu Ala Gly Val Ile Ala Gly Ser
145   150   155   160

Leu Ala Ser Ser Ile Phe Asp Pro Leu Arg Tyr Leu Val Gly Ala Ser
                165   170   175

Gly Gly Val Tyr Ala Leu Met Gly Gly Tyr Phe Met Asn Val Leu Val
            180   185   190

Asn Phe Gln Glu Met Ile Pro Ala Phe Gly Ile Phe Arg Leu Leu Ile
            195   200   205

44

Ile Ile Leu Ile Ile Val Leu Asp Met Gly Phe Ala Leu Tyr Arg Arg
    210   215   220

Phe Phe Val Pro Glu Asp Gly Ser Pro Val Ser Phe Ala Ala His Ile
225   230   235   240

Ala Gly Gly Phe Ala Gly Met Ser Ile Gly Tyr Thr Val Phe Ser Cys
                245   250   255

Phe Asp Lys Ala Leu Leu Lys Asp Pro Arg Phe Trp Ile Ala Ile Ala
            260   265   270

Ala Tyr Leu Ala Cys Val Leu Phe Ala Val Phe Phe Asn Ile Phe Leu
        275   280   285

Ser Pro Ala Asn
    290

<210> 38
<211> 174
<212> PRT
<213> Homo sapiens

<400> 38

Leu Cys Arg Val Gln His Ile Leu Gly Asn Leu Cys Met Gln Leu Val
1   5   10   15

Leu Gly Ile Pro Leu Glu Met Val His Lys Gly Leu Arg Val Gly Leu
            20   25   30

Val Tyr Leu Ala Gly Val Ile Ala Gly Ser Leu Ala Ser Ser Ile Phe
        35   40   45

Asp Pro Leu Arg Tyr Leu Val Gly Ala Ser Gly Gly Val Tyr Ala Leu
    50   55   60

Met Gly Gly Tyr Phe Met Asn Val Leu Val Asn Phe Gln Glu Met Ile
65   70   75   80

Pro Ala Phe Gly Ile Phe Arg Leu Leu Ile Ile Ile Leu Ile Ile Val
                85   90   95

Leu Asp Met Gly Phe Ala Leu Tyr Arg Arg Phe Phe Val Pro Glu Asp
            100   105   110

45

Gly Ser Pro Val Ser Phe Ala Ala His Ile Ala Gly Gly Phe Ala Gly
        115   120   125

Met Ser Ile Gly Tyr Thr Val Phe Ser Cys Phe Asp Lys Ala Leu Leu
        130   135   140

Lys Asp Pro Arg Phe Trp Ile Ala Ile Ala Ala Tyr Leu Ala Cys Val
145   150   155   160

Leu Phe Ala Val Phe Phe Asn Ile Phe Leu Ser Pro Ala Asn
                165   170

<210> 39
<211> 162
<212> PRT
<213> Homo sapiens

<400> 39

Met Gln Leu Val Leu Gly Ile Pro Leu Glu Met Val His Lys Gly Leu
1   5   10   15

Arg Val Gly Leu Val Tyr Leu Ala Gly Val Ile Ala Gly Ser Leu Ala
            20   25   30

Ser Ser Ile Phe Asp Pro Leu Arg Tyr Leu Val Gly Ala Ser Gly Gly
        35   40   45

Val Tyr Ala Leu Met Gly Gly Tyr Phe Met Asn Val Leu Val Asn Phe
        50   55   60

Gln Glu Met Ile Pro Ala Phe Gly Ile Phe Arg Leu Leu Ile Ile Ile
65   70   75   80

Leu Ile Ile Val Leu Asp Met Gly Phe Ala Leu Tyr Arg Arg Phe Phe
                85   90   95

Val Pro Glu Asp Gly Ser Pro Val Ser Phe Ala Ala His Ile Ala Gly
            100   105   110

Gly Phe Ala Gly Met Ser Ile Gly Tyr Thr Val Phe Ser Cys Phe Asp
        115   120   125

46

Lys Ala Leu Leu Lys Asp Pro Arg Phe Trp Ile Ala Ile Ala Ala Tyr
    130   135   140

Leu Ala Cys Val Leu Phe Ala Val Phe Phe Asn Ile Phe Leu Ser Pro
145   150   155   160

Ala Asn

<210> 40
<211> 379
<212> PRT
<213> Homo sapiens

<400> 40

Met Ala Trp Arg Gly Trp Ala Gln Arg Gly Trp Gly Cys Gly Gln Ala
1   5   10   15

Trp Gly Ala Ser Val Gly Gly Arg Ser Cys Glu Glu Leu Thr Ala Val
                20   25   30

Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln
        35   40   45

Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
    50   55   60

Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile
65   70   75   80

Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
                85   90   95

Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
                100   105   110

Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
                115   120   125

Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
    130   135   140

Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
145   150   155   160

47

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Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
            165                 170                 175


Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
            180                 185                 190


Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro
            195                 200                 205


Met Leu Leu Ser Thr Phe Ser His Phe Ser Leu Phe His Met Ala Ala
    210                 215                 220


Asn Met Tyr Val Leu Trp Ser Phe Ser Ser Ser Ile Val Asn Ile Leu
225                 230                 235                 240


Gly Gln Glu Gln Phe Met Ala Val Tyr Leu Ser Ala Gly Val Ile Ser
            245                 250                 255


Asn Phe Val Ser Tyr Leu Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro
            260                 265                 270


Ser Leu Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys
            275                 280                 285


Thr Lys Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe
    290                 295                 300


Thr Phe Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr
305                 310                 315                 320


Ala Gly Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu
            325                 330                 335


Gly Gly Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu
            340                 345                 350


Ile Trp Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg
            355                 360                 365


Thr Asn Gly Pro Lys Lys Gly Gly Gly Ser Lys
    370                 375
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<210> 41
<211> 855
<212> PRT
<213> Homo sapiens

<400> 41

Met Ser Glu Ala Arg Arg Asp Ser Thr Ser Ser Leu Gln Arg Lys Lys
1   5   10   15

Pro Pro Trp Leu Lys Leu Asp Ile Pro Ser Ala Val Pro Leu Thr Ala
                20   25   30

Glu Glu Pro Ser Phe Leu Gln Pro Leu Arg Arg Gln Ala Phe Leu Arg
        35   40   45

Ser Val Ser Met Pro Ala Glu Thr Ala His Ile Ser Ser Pro His His
        50   55   60

Glu Leu Arg Arg Pro Val Leu Gln Arg Gln Thr Ser Ile Thr Gln Thr
65   70   75   80

Ile Arg Arg Gly Thr Ala Asp Trp Phe Gly Val Ser Lys Asp Ser Asp
                85   90   95

Ser Thr Gln Lys Trp Gln Arg Lys Ser Ile Arg His Cys Ser Gln Arg
                100   105   110

Tyr Gly Lys Leu Lys Pro Gln Val Leu Arg Glu Leu Asp Leu Pro Ser
        115   120   125

Gln Asp Asn Val Ser Leu Thr Ser Thr Glu Thr Pro Pro Pro Leu Tyr
        130   135   140

Val Gly Pro Cys Gln Leu Gly Met Gln Lys Ile Ile Asp Pro Leu Ala
145   150   155   160

Arg Gly Arg Ala Phe Arg Val Ala Asp Asp Thr Ala Glu Gly Leu Ser
                165   170   175

Ala Pro His Thr Pro Val Thr Pro Gly Ala Ala Ser Leu Cys Ser Phe
                180   185   190

Ser Ser Ser Arg Ser Gly Phe His Arg Leu Pro Arg Arg Arg Lys Arg

49

Glu Ser Val Ala Lys Met Ser Phe Arg Ala Ala Ala Ala Leu Met Lys
    210   215   220

Gly Arg Ser Val Arg Asp Gly Thr Phe Arg Arg Ala Gln Arg Arg Ser
225   230   235   240

Phe Thr Pro Ala Ser Phe Leu Glu Glu Asp Thr Thr Asp Phe Pro Asp
          245   250   255

Glu Leu Asp Thr Ser Phe Phe Ala Arg Glu Gly Ile Leu His Glu Glu
          260   265   270

Leu Ser Thr Tyr Pro Asp Glu Val Phe Glu Ser Pro Ser Glu Ala Ala
          275   280   285

Leu Lys Asp Trp Glu Lys Ala Pro Glu Gln Ala Asp Leu Thr Gly Gly
    290   295   300

Ala Leu Asp Arg Ser Glu Leu Glu Arg Ser His Leu Met Leu Pro Leu
305   310   315   320

Glu Arg Gly Trp Arg Lys Gln Lys Glu Gly Ala Ala Ala Pro Gln Pro
          325   330   335

Lys Val Arg Leu Arg Gln Glu Val Val Ser Thr Ala Gly Pro Arg Arg
          340   345   350

Gly Gln Arg Ile Ala Val Pro Val Arg Lys Leu Phe Ala Arg Glu Lys
          355   360   365

Arg Pro Tyr Gly Leu Gly Met Val Gly Arg Leu Thr Asn Arg Thr Tyr
    370   375   380

Arg Lys Arg Ile Asp Ser Phe Val Lys Arg Gln Ile Glu Asp Met Asp
385   390   395   400

Asp His Arg Pro Phe Phe Thr Tyr Trp Leu Thr Phe Val His Ser Leu
          405   410   415

Val Ala Ile Leu Ala Val Cys Ile Tyr Gly Ile Ala Pro Val Gly Phe
          420   425   430

50

Ser Gln His Glu Thr Val Asp Ser Val Leu Arg Asn Arg Gly Val Tyr
        435   440   445

Glu Asn Val Lys Tyr Val Gln Gln Glu Asn Phe Trp Ile Gly Pro Ser
        450   455   460

Ser Glu Ala Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys Met Arg
465   470   475   480

Gln Asp Pro Gln Val His Ser Phe Ile Arg Ser Ala Arg Glu Arg Glu
                485   490   495

Lys His Ser Ala Cys Cys Val Arg Asn Asp Arg Ser Gly Cys Val Gln
                500   505   510

Thr Ser Glu Glu Glu Cys Ser Ser Thr Leu Ala Val Trp Val Lys Trp
        515   520   525

Pro Ile His Pro Ser Ala Pro Glu Leu Ala Gly His Lys Arg Gln Phe
        530   535   540

Gly Ser Val Cys His Gln Asp Pro Arg Val Cys Asp Glu Pro Ser Ser
545   550   555   560

Glu Asp Pro His Glu Trp Pro Glu Asp Ile Thr Lys Trp Pro Ile Cys
                565   570   575

Thr Lys Asn Ser Ala Gly Asn His Thr Asn His Pro His Met Asp Cys
                580   585   590

Val Ile Thr Gly Arg Pro Cys Cys Ile Gly Thr Lys Gly Arg Cys Glu
        595   600   605

Ile Thr Ser Arg Glu Tyr Cys Asp Phe Met Arg Gly Tyr Phe His Glu
        610   615   620

Glu Ala Thr Leu Cys Ser Gln Val His Cys Met Asp Asp Val Cys Gly
625   630   635   640

Leu Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln Phe Tyr Arg Leu
                645   650   655

51

Trp Leu Ser Leu Phe Leu His Ala Gly Ile Leu His Cys Leu Val Ser
            660   665   670

Ile Cys Phe Gln Met Thr Val Leu Arg Asp Leu Glu Lys Leu Ala Gly
            675   680   685

Trp His Arg Ile Ala Ile Ile Tyr Leu Leu Ser Gly Val Thr Gly Asn
    690   695   700

Leu Ala Ser Ala Ile Phe Leu Pro Tyr Arg Ala Glu Val Gly Pro Ala
705   710   715   720

Gly Ser Gln Phe Gly Ile Leu Ala Cys Leu Phe Val Glu Leu Phe Gln
            725   730   735

Ser Trp Gln Ile Leu Ala Arg Pro Trp Arg Ala Phe Phe Lys Leu Leu
            740   745   750

Ala Val Val Leu Phe Leu Phe Thr Phe Gly Leu Leu Pro Trp Ile Asp
            755   760   765

Asn Phe Ala His Ile Ser Gly Phe Ile Ser Gly Leu Phe Leu Ser Phe
    770   775   780

Ala Phe Leu Pro Tyr Ile Ser Phe Gly Lys Phe Asp Leu Tyr Arg Lys
785   790   795   800

Arg Cys Gln Ile Ile Ile Phe Gln Val Val Phe Leu Gly Leu Leu Ala
            805   810   815

Gly Leu Val Val Leu Phe Tyr Val Tyr Pro Val Arg Cys Glu Trp Cys
            820   825   830

Glu Phe Leu Thr Cys Ile Pro Phe Thr Asp Lys Phe Cys Glu Lys Tyr
            835   840   845

Glu Leu Asp Ala Gln Leu His
    850   855

<210>   42
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<212>   PRT
<213>   Homo sapiens

52

<400> 42

Met Ser Val Ala His Met Ser Leu Gln Ala Ala Ala Ala Leu Leu Lys
1   5   10   15

Gly Arg Ser Val Leu Asp Ala Thr Gly Gln Arg Cys Arg Val Val Lys
            20   25   30

Arg Ser Phe Ala Phe Pro Ser Phe Leu Glu Glu Asp Val Val Asp Gly
            35   40   45

Ala Asp Thr Phe Asp Ser Ser Phe Phe Ser Lys Glu Glu Met Ser Ser
        50   55   60

Met Pro Asp Asp Val Phe Glu Ser Pro Pro Leu Ser Ala Ser Tyr Phe
65   70   75   80

Arg Gly Ile Pro His Ser Ala Ser Pro Val Ser Pro Asp Gly Val Gln
                85   90   95

Ile Pro Leu Lys Glu Tyr Gly Arg Ala Pro Val Pro Gly Pro Arg Arg
            100   105   110

Gly Lys Arg Ile Ala Ser Lys Val Lys His Phe Ala Phe Asp Arg Lys
            115   120   125

Lys Arg His Tyr Gly Leu Gly Val Val Gly Asn Trp Leu Asn Arg Ser
            130   135   140

Tyr Arg Arg Ser Ile Ser Ser Thr Val Gln Arg Gln Leu Glu Ser Phe
145   150   155   160

Asp Ser His Arg Pro Tyr Phe Thr Tyr Trp Leu Thr Phe Val His Val
                165   170   175

Ile Ile Thr Leu Leu Val Ile Cys Thr Tyr Gly Ile Ala Pro Val Gly
                180   185   190

Phe Ala Gln His Val Thr Thr Gln Leu Val Leu Arg Asn Lys Gly Val
            195   200   205

Tyr Glu Ser Val Lys Tyr Ile Gln Gln Glu Asn Phe Trp Val Gly Pro
    210   215   220

53

Ser Ser Ile Asp Leu Ile His Leu Gly Ala Lys Phe Ser Pro Cys Ile
225   230   235   240

Arg Lys Asp Gly Gln Ile Glu Gln Leu Val Leu Arg Glu Arg Asp Leu
                245   250   255

Glu Arg Asp Ser Gly Cys Cys Val Gln Asn Asp His Ser Gly Cys Ile
                260   265   270

Gln Thr Gln Arg Lys Asp Cys Ser Glu Thr Leu Ala Thr Phe Val Lys
                275   280   285

Trp Gln Asp Asp Thr Gly Pro Pro Met Asp Lys Ser Asp Leu Gly Gln
        290   295   300

Lys Arg Thr Ser Gly Ala Val Cys His Gln Asp Pro Arg Thr Cys Glu
305   310   315   320

Glu Pro Ala Ser Ser Gly Ala His Ile Trp Pro Asp Asp Ile Thr Lys
                325   330   335

Trp Pro Ile Cys Thr Glu Gln Ala Arg Ser Asn His Thr Gly Phe Leu
                340   345   350

His Met Asp Cys Glu Ile Lys Gly Arg Pro Cys Cys Ile Gly Thr Lys
                355   360   365

Gly Ser Cys Glu Ile Thr Thr Arg Glu Tyr Cys Glu Phe Met His Gly
        370   375   380

Tyr Phe His Glu Glu Ala Thr Leu Cys Ser Gln Val His Cys Leu Asp
385   390   395   400

Lys Val Cys Gly Leu Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln
                405   410   415

Phe Tyr Arg Leu Trp Leu Ser Leu Phe Leu His Ala Gly Val Val His
                420   425   430

Cys Leu Val Ser Val Val Phe Gln Met Thr Ile Leu Arg Asp Leu Glu
        435   440   445

54

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Lys Leu Ala Gly Trp His Arg Ile Ala Ile Ile Phe Ile Leu Ser Gly
    450               455           460

Ile Thr Gly Asn Leu Ala Ser Ala Ile Phe Leu Pro Tyr Arg Ala Glu
465               470           475               480

Val Gly Pro Ala Gly Ser Gln Phe Gly Leu Leu Ala Cys Leu Phe Val
             485           490               495

Glu Leu Phe Gln Ser Trp Pro Leu Leu Glu Arg Pro Trp Lys Ala Phe
         500           505           510

Leu Asn Leu Ser Ala Ile Val Leu Phe Leu Phe Ile Cys Gly Leu Leu
         515           520           525

Pro Trp Ile Asp Asn Ile Ala His Ile Phe Gly Phe Leu Ser Gly Leu
    530           535           540

Leu Leu Ala Phe Ala Phe Leu Pro Tyr Ile Thr Phe Gly Thr Ser Asp
545           550           555               560

Lys Tyr Arg Lys Arg Ala Leu Ile Leu Val Ser Leu Leu Ala Phe Ala
             565           570               575

Gly Leu Phe Ala Ala Leu Val Leu Trp Leu Tyr Ile Tyr Pro Ile Asn
         580           585           590

Trp Pro Trp Ile Glu His Leu Thr Cys Phe Pro Phe Thr Ser Arg Phe
    595           600           605

Cys Glu Lys Tyr Glu Leu Asp Gln Val Leu His
    610           615


<210>  43
<211>  434
<212>  PRT
<213>  Homo sapiens

<400>  43

Met Gly Arg Gly Leu Trp Glu Ala Trp Pro Pro Ala Gly Ser Ser Ala
1             5                 10              15


Val Ala Lys Gly Asn Cys Arg Glu Glu Ala Glu Gly Ala Glu Asp Arg
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Gln Pro Ala Ser Arg Arg Gly Ala Gly Thr Thr Ala Ala Met Ala Ala
        35   40   45

Ser Gly Pro Gly Cys Arg Ser Trp Cys Leu Cys Pro Glu Val Pro Ser
    50   55   60

Ala Thr Phe Phe Thr Ala Leu Leu Ser Leu Leu Val Ser Gly Pro Arg
65   70   75   80

Leu Phe Leu Leu Gln Gln Pro Leu Ala Pro Ser Gly Leu Thr Leu Lys
            85   90   95

Ser Glu Ala Leu Arg Asn Trp Gln Val Tyr Arg Leu Val Thr Tyr Ile
            100   105   110

Phe Val Tyr Glu Asn Pro Ile Ser Leu Leu Cys Gly Ala Ile Ile Ile
        115   120   125

Trp Arg Phe Ala Gly Asn Phe Glu Arg Thr Val Gly Thr Val Arg His
    130   135   140

Cys Phe Phe Thr Val Ile Phe Ala Ile Phe Ser Ala Ile Ile Phe Leu
145   150   155   160

Ser Phe Glu Ala Val Ser Ser Leu Ser Lys Leu Gly Glu Val Glu Asp
            165   170   175

Ala Arg Gly Phe Thr Pro Val Ala Phe Ala Met Leu Gly Val Thr Thr
            180   185   190

Val Arg Ser Arg Met Arg Arg Ala Leu Val Phe Gly Met Val Val Pro
    195   200   205

Ser Val Leu Val Pro Trp Leu Leu Leu Gly Ala Ser Trp Leu Ile Pro
    210   215   220

Gln Thr Ser Phe Leu Ser Asn Val Cys Gly Leu Ser Ile Gly Leu Ala
225   230   235   240

Tyr Ala His Leu Leu Leu Phe His Arg Pro Leu Arg Ala Ser Gly Ala
            245   250   255

56

Glu Ala Arg Ser Asp Leu Pro Leu Gln Pro Asp Glu Glu Asp Ile Arg
        260   265   270

Val Gln Val Arg Leu Arg Val Phe Ser Arg Glu Glu Gly Ser Pro Glu
        275   280   285

Pro Glu Thr Glu Pro Gly Ala Trp Leu Leu Pro His Thr Glu Leu Pro
    290   295   300

Pro Ser Pro Val Pro Lys Pro Pro Cys Val Pro Asp Ala Ala Arg Gln
305   310   315   320

Trp Ser Glu Ala Gly Leu Leu Ala Ser Cys Thr Pro Gly His Met Pro
            325   330   335

Thr Leu Pro Pro Tyr Gln Pro Ala Ser Gly Leu Cys Tyr Val Gln Asn
            340   345   350

His Phe Gly Pro Asn Pro Thr Ser Ser Ser Val Tyr Pro Ala Ser Ala
        355   360   365

Gly Thr Ser Leu Gly Ile Gln Pro Pro Thr Pro Val Asn Ser Pro Gly
    370   375   380

Thr Val Tyr Ser Gly Ala Leu Gly His Gln Gly Leu Gln Ala Pro Arg
385   390   395   400

Ser Pro Pro Gly Ser Pro Cys Pro Glu Arg Ile Ser Arg Glu Val Ile
            405   410   415

Ser Leu Gly Leu Leu Lys Val Leu Pro Lys Ser Leu Leu Thr Lys Val
            420   425   430

Thr Tyr

<210>   44
<211>   386
<212>   PRT
<213>   Homo sapiens

<400>   44

57

Met His Ala Arg Gly Pro His Gly Gln Leu Ser Pro Ala Leu Pro Leu
1   5   10   15

Ala Ser Ser Val Leu Met Leu Leu Met Ser Thr Leu Trp Leu Val Gly
            20   25   30

Ala Gly Pro Gly Leu Val Leu Ala Pro Glu Leu Leu Leu Asp Pro Trp
        35   40   45

Gln Val His Arg Leu Leu Thr His Ala Leu Gly His Thr Ala Leu Pro
        50   55   60

Gly Leu Leu Leu Ser Leu Leu Leu Leu Pro Thr Val Gly Trp Gln Gln
65   70   75   80

Glu Cys His Leu Gly Thr Leu Arg Phe Leu His Ala Ser Ala Leu Leu
            85   90   95

Ala Leu Ala Ser Gly Leu Leu Ala Val Leu Leu Ala Gly Leu Gly Leu
        100   105   110

Ser Ser Ala Ala Gly Ser Cys Gly Tyr Met Pro Val His Leu Ala Met
        115   120   125

Leu Ala Gly Glu Gly His Arg Pro Arg Arg Pro Arg Gly Ala Leu Pro
    130   135   140

Pro Trp Leu Ser Pro Trp Leu Leu Leu Ala Leu Thr Pro Leu Leu Ser
145   150   155   160

Ser Glu Pro Pro Phe Leu Gln Leu Leu Cys Gly Leu Leu Ala Gly Leu
            165   170   175

Ala Tyr Ala Ala Gly Ala Phe Arg Trp Leu Glu Pro Ser Glu Arg Arg
        180   185   190

Leu Gln Val Leu Gln Glu Gly Val Leu Cys Arg Thr Leu Ala Gly Cys
    195   200   205

Trp Pro Leu Arg Leu Leu Ala Thr Pro Gly Ser Leu Ala Glu Leu Pro
    210   215   220

Val Thr His Pro Ala Gly Val Arg Pro Pro Ile Pro Gly Pro Pro Tyr

58

Val Ala Ser Pro Asp Leu Trp Ser His Trp Glu Asp Ser Ala Leu Pro
              245   250   255

Pro Pro Ser Leu Arg Pro Val Gln Pro Thr Trp Glu Gly Ser Ser Glu
              260   265   270

Ala Gly Leu Asp Trp Ala Gly Ala Ser Phe Ser Pro Gly Thr Pro Met
              275   280   285

Trp Ala Ala Leu Asp Glu Gln Met Leu Gln Glu Gly Ile Gln Ala Ser
    290   295   300

Leu Leu Asp Gly Pro Ala Gln Glu Pro Gln Ser Ala Pro Trp Leu Ser
305   310   315   320

Lys Ser Ser Val Ser Ser Leu Arg Leu Gln Gln Leu Glu Arg Met Gly
              325   330   335

Phe Pro Thr Glu Gln Ala Val Val Ala Leu Ala Ala Thr Gly Arg Val
              340   345   350

Glu Gly Ala Val Ser Leu Leu Val Gly Gly Gln Val Gly Thr Glu Thr
              355   360   365

Leu Val Thr His Gly Lys Gly Gly Pro Ala His Ser Glu Gly Pro Gly
    370   375   380

Pro Pro
385

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cgcgtgcgcg tgcaggatat gcgcgtactc tggctgtgtg cgcgctgggc tggcatctcg   180

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59

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<211>    470
<212>    PRT
<213>    Mus musculus

<400>    46

Met Ala Tyr Trp Glu Lys Leu Leu Pro His Val Val Gln Glu Leu Asp
1                5                   10                  15


Ala Gly Ser Gly Ser Gly Ser Ser Cys Ser Val Gly Asp Asp Leu Pro
                20                  25                  30


Arg Gln Cys Val Glu Leu Gly Pro Arg Val Arg Val Gln Asp Met Arg
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60

Val Leu Trp Leu Cys Ala Arg Trp Ala Gly Ile Ser Val Thr Leu Ser
    50   55   60

Glu Leu Gly Glu Arg Arg Ala Glu Gln Ala Glu Arg Ala Gly Arg Gly
65   70   75   80

Gly Ala Glu Arg Ser Ala Glu Gln Pro Leu Pro Ala Ser Ala Asp Pro
                100   105   95

Gly Pro Arg Pro Gly Ser Met Asp Arg Ser Ser Leu Leu Gln Leu Ile
            100   105   110

Gln Glu Gln Gln Leu Asp Pro Glu Asn Thr Gly Phe Ile Gly Ala Asp
        115   120   125

Thr Phe Ala Gly Leu Val His Ser His Glu Leu Pro Leu Asp Pro Thr
    130   135   140

Lys Leu Asp Met Leu Val Ala Leu Ala Gln Ser Asn Glu Arg Gly Gln
145   150   155   160

Val Cys Tyr Gln Glu Leu Val Asp Leu Val Ser Ala Met Ile Ser Ser
            165   170   175

Lys Arg Ser Ser Ser Phe Lys Arg Ala Ile Ala Asn Gly Gln Arg Ala
            180   185   190

Leu Pro Arg Asp Gly Leu Leu Asp Glu Pro Gly Leu Ser Val Tyr Lys
        195   200   205

Arg Phe Val Arg Tyr Val Ala Tyr Glu Ile Leu Pro Cys Glu Val Asp
    210   215   220

Arg Arg Trp Tyr Phe Tyr Arg His Arg Thr Cys Pro Pro Pro Val Phe
225   230   235   240

Met Ala Ser Val Thr Leu Ala Gln Cys Pro Gln Ile Ile Val Phe Leu
            245   250   255

Cys Tyr Gly Ala Arg Leu Asn Lys Trp Val Leu Gln Thr Tyr His Pro
            260   265   270

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Glu Tyr Met Lys Ser Pro Leu Val Tyr His Pro Gly His Arg Ala Arg
        275                 280                 285

Ala Trp Arg Phe Leu Thr Tyr Met Phe Met His Val Gly Leu Glu Gln
        290                 295                 300

Leu Gly Phe Asn Ala Leu Leu Gln Leu Met Ile Gly Val Pro Leu Glu
305                 310                 315                 320

Met Val His Gly Val Leu Arg Ile Ser Leu Leu Tyr Leu Ala Gly Val
                325                 330                 335

Leu Ala Gly Ser Leu Thr Val Ser Ile Thr Asp Met Arg Ala Pro Val
                340                 345                 350

Val Gly Gly Ser Gly Gly Val Tyr Ala Leu Cys Ser Ala His Leu Ala
                355                 360                 365

Asn Val Val Met Val Met Gly Leu Pro Phe Trp Gly Val Ser Ser Glu
        370                 375                 380

Val Gly Arg Ala Val Trp Leu Arg Phe Ser Pro Pro Leu Pro Ala Ser
385                 390                 395                 400

Gly Pro Gln Pro Ser Phe Met Ala His Leu Ala Gly Ala Val Val Gly
                405                 410                 415

Val Ser Met Gly Leu Thr Ile Leu Arg Ser Tyr Glu Glu Arg Leu Arg
                420                 425                 430

Asp Gln Cys Gly Trp Trp Val Val Leu Leu Ala Tyr Gly Thr Phe Leu
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Leu Phe Ala Ile Phe Trp Asn Val Phe Ala Tyr Asp Leu Leu Gly Ala
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Asp Ile Pro Pro Pro Pro
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<213> Mus musculus

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63

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64

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68

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72

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